

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 25 August 2000 (25.08.00)	
International application No. PCT/US99/26133	Applicant's or agent's file reference 68-97 WO
International filing date (day/month/year) 05 November 1999 (05.11.99)	Priority date (day/month/year) 06 November 1998 (06.11.98)
Applicant KINKADE, Joseph, M., Jr. et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

11 May 2000 (11.05.00)

☐ in a notice effecting later election filed with the International Bureau on:
2. The election ☒ was
☐ was not

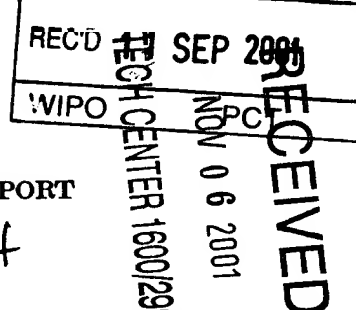
made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Manu Berrod Telephone No.: (41-22) 338.83.38
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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference 68-97 WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/26133	International filing date (day/month/year) 05 NOVEMBER 1999	Priority date (day/month/year) 06 NOVEMBER 1998
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant EMORY UNIVERSITY		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 6 sheets.
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
 These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 11 MAY 2000	Date of completion of this report 18 APRIL 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer <i>Lisa V. Cook</i> LISA V. COOK Telephone No. (703) 308-0196

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
pages 1-55, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the claims:
pages 56-65, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the drawings:
pages 1-16, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages None
- ☒ the claims, Nos. None
- ☒ the drawings, sheets/fig None

5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been and will not be examined in respect of:

☐ the entire international application.

☒ claims Nos. 65, 66, 72, 77, and 78

because:

☐ the said international application, or the said claim Nos. _ relate to the following subject matter which does not require international preliminary examination (*specify*).

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. _ are so unclear that no meaningful opinion could be formed (*specify*).

☒ the claims, or said claims Nos. (See Attached) are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for said claims Nos. _.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. statement**

Novelty (N)	Claims	<u>(Please See supplemental sheet)</u>	YES
	Claims	<u>(Please See supplemental sheet)</u>	NO
Inventive Step (IS)	Claims	<u>(Please See supplemental sheet)</u>	YES
	Claims	<u>(Please See supplemental sheet)</u>	NO
Industrial Applicability (IA)	Claims	<u>(Please See supplemental sheet)</u>	YES
	Claims	<u>(Please See supplemental sheet)</u>	NO

2. citations and explanations (Rule 70.7)

I. Claims 1-2,8,10,13,15,17, and 20 lack novelty under PCT Article 33(2) as being anticipated by Osawa (Shipin Kexue (Taipei, 24(6), Abstract).

Osawa teach methods of assessing lipid hydroxperoides and secondary products of oxidative breakdown in numerous plant materials. The reaction products are important biomarkers for antioxidative activity of dietary antioxidants. Specifically the reference employs polyclonal and monoclonal antibodies in immunochemical detection methods to detect the antioxidants.

II. Claims 3-4,9,11-12,18,19,21, and 22 lack an inventive step under PCT Article 33(3) as being obvious over Osawa (Shipin Kexue (Taipei, 24(6), Abstract) in view of Roberts et al. (United States Patent #5,700,654).

The dependent claims do not appear to contain any feature which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, given the teachings of Osawa detecting antioxidants as biomarkers of oxidative stress and the teaching of Roberts wherein antibody compositions are produced and utilized to assess oxidative stress via free radicals (i.e. prostaglandin F₂). Columns 1 and 2. Roberts et al. disclose both in vivo and in vitro methods to measure biomarkers of oxidative stress as compared with controlled samples (normal subsets). The in vitro models include immunoassays employing antibodies to measure picogram level of the biomarker in human plasma and urine samples. See column 4, lines 23-36 and column 8, 37-58.

III. Claims 1,5-7,14-16,23-64,67-71,73-76, and 79-81 lack an inventive step under PCT Article 33(3) as being obvious over Osawa (Shipin Kexue (Taipei, 24(6), Abstract) in view of Roberts et al. (United States Patent #5,700,654) and in further view of Ding et al. (Biochemical Journal, May 15, 1998, Vol.332, Part 1, pages 251-5).
(Continued on Supplemental Sheet.)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/26133

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 65, 66, 72, 77, and 78 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because the claims have acronyms that are indefinite for the following reason(s): The acronyms K2.F1. and K2F1.6 should be defined in their first instance or referred to their intended structural definitions. The acronyms appear to be applicants own laboratory designations, but do not clearly identify the monoclonal being claimed. It is not clear if applicant intends for the acronyms to be defined by the prior art teachings. The ATCC accession numbers would clearly identified the intended claimed monoclonal antibodies and the hybridomas. Please identify applicants intended meaning/product.

Supplemental B x

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

CLASSIFICATION:

The International Patent Classification (IPC) and/or the National classification are as listed below:
IPC(7): C12Q 1/02, 1/26, 1/68; G01N 31/00, 33/00, 33/15, 33/53; C07C 61/06; C12N 1/21, 9/64, 9/50, 15/09; C07K 1/22, 14/53, 14/525; A61K 38/19, 49/00 and US Cl.: 435 7, 172.2, 243, 948, 68, 240.26, 240.27, 25, 29, 252.33, 6, 32, 63, 172.3, 240.2, 240.21, 320.1, 212, 219, 226; 436 71, 74, 86, 89, 548; 562 503; 424 9.1, 9.2, 88, 93, 85.1, 85.2; 935 70, 66, 34, 89; 530 350, 351, 413, 387, 806, 808, 809, 331, 345; 135 6; 514 2, 8, 885, 261, 474, 550; 536 23.1;

III. NON-ESTABLISHMENT OF REPORT:

Claim numbers 65, 66, 72, 77, and 78 are so inadequately supported by the description that no meaningful report could be formed.

V. 1. REASONED STATEMENTS:

The report as to Novelty was positive (YES) with respect to claims None.

The report as to Novelty was negative (NO) with respect to claims 1-2, 8, 10, 13, 15, 17, and 20.

The report as to Inventive Step was positive (YES) with respect to claims None.

The report as to Inventive Step was negative (NO) with respect to claims 3-7, 9, 11-12, 14, 16, 18-19, 23-64, 67-71, 73- 76, and 79-81.

The report as to Industrial Applicability was positive (YES) with respect to claims 1-64, 67-71, 73-76, and 79-81.

The report as to Industrial Applicability was negative (NO) with respect to claims None.

V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):

The cited claims are specific to the utility of an oxidized sulfur- or selenium containing amino acid. Such antibody compositions are taught in the reference of Ding et al. wherein a selenium-containing catalytic antibody is produced and employed to protect mammalian cells from oxidative damage. Given the fact that method to assess oxidative damage were already taught in the art as exhibited by Osawa in view of Roberts it would have been obvious for one of ordinary skill to employ a sulfur- or selenium-containing amino acids as biomarkers evaluating oxidative stress.

----- NEW CITATIONS -----

US 5,700,654 A (Roberts et al.) 23 DECEMBER 1997, see entire document.

Ding et al. Biochemical characterization of selenium-containing catalytic antibody as a cytosolic glutathione peroxidase mimic. May 15, 1998. page 251-255. See entire document.

Osawa, Toshihiko. Protective role of dietary antioxidants in oxidative stress. Applied Sciences. Nagoya, 464-01 Japan. Shipin Kexue (Taipei), 24(6), pages 679-689 (English) 1997. Abstract Only.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/26133

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : Please See Extra Sheet.

US CL : Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : Please See Extra Sheet.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
ATCC catalogue

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST, WEST, STN - BIOSIS, CAPLUS, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,667,776 A (ZIMMERMAN et al.) 16 September 1997, entire document.	1-36
Y	US 5,702,697 A (ZIMMERMAN et al.) 30 December 1997, entire document	1-36
Y	US 5,700,654 A (ROBERTS et al.) 23 December 1997, entire document.	37-44
Y	US 5,814,300 A (SCOTT et al.) 29 September 1998, entire document.	45-53
Y	US 4,859,613 A (LAWRENCE) 22 August 1989, entire document.	54-58

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone.
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

14 JANUARY 2000

Date of mailing of the international search report

18 FEB 2000

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

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Authorized officer

LISA V. COOK

Telephone No. (703) 308-0196

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/26133

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Database BIOSIS, Accession No. 130260, HANAZAWA et al., Monoclonal antibody against a serotype antigen of Porphyromonas (Bacteroides) endotails and characteristics of the antigen. Infectious Immunology. 1990, Vol.58, No. 8, pages 2542-2546, see Abstract	66-81
A	Database BIOSIS, Accession Number 377715, LAINE, M.L. et al., Novel polysaccharide capsular serotypes in Porphyromonas gingivalis. Journal of Periodontal Research. 1996, Vol. 31, No. 4, pages 278-284.	66-81
A	US 5,605,826 A (WRIGHT et al.) 25 February 1997, entire document.	1-81
A	US 5,585,232 A (FARR) 17 December 1996, entire document.	1-81

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/26133

A. CLASSIFICATION OF SUBJECT MATTER:
IPC (7):

C12Q 1/02, 1/26, 1/68; G01N 31/00, 33/00, 33/15, 33/53; C07C 61/06; C12N 1/21, 9/64, 9/50, 15/09; C07K 1/22, 14/53, 14/525; A61K 38/19, 49/00

A. CLASSIFICATION OF SUBJECT MATTER:
US CL :

435 7, 172.2, 243, 948, 68, 240.26, 240.27, 25, 29, 252.33, 6, 32, 63, 172.3, 240.2, 240.21, 320.1, 212, 219, 226; 436 71, 74, 86, 89, 548; 562 503; 424 9.1, 9.2, 88, 93, 85.1, 85.2; 935 70, 66, 34, 89; 530 350, 351, 413, 387, 806, 808, 809, 331, 345; 135 6; 514 2, 8, 885, 261, 474, 550; 536 23.1;

B. FIELDS SEARCHED

Minimum documentation searched

Classification System: U.S.

435 7, 172.2, 243, 948, 68, 240.26, 240.27, 25, 29, 252.33, 6, 32, 63, 172.3, 240.2, 240.21, 320.1, 212, 219, 226; 436 71, 74, 86, 89, 548; 562 503; 424 9.1, 9.2, 88, 93, 85.1, 85.2; 935 70, 66, 34, 89; 530 350, 351, 413, 387, 806, 808, 809, 331, 345; 135 6; 514 2, 8, 885, 261, 474, 550; 536 23.1;